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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application Number: 10/509,981
Filing Date: April 22, 2005
Appellant(s): BACKLUND, HANS-OLOF

Arnold H. Krumholz
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 12-09-08 appealing from the Office action mailed 12-13-07.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

Appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

Appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

| | | |
|---|---|---|
| 6,840,470 | BANKES | 1-2005 |
| 5,747,707 | JOHANSSON | 5-1998 |

**(9) Grounds of Rejection**

In the rejections infra, generally, reference labels and other claim element identifiers are recited only for the first recitation of identical claim elements.

The following ground of rejection is applicable to the appealed claims:

Claims 22, 24-32 and 34-42 stand rejected under 35 U.S.C. 102(e) as being clearly anticipated by Bankes (6840470).

At column 2, line 59 to column 3, line 3; column 3, line 64 to column 4, line 8; column 4, lines 35-42 and 47-48; column 5, lines 13-32; column 6, lines 11-57; column 7, lines 10-21; column 7, line 58 to column 8, line 18; column 8, line 39 to column 9, line 3; column 9, line 51 to column 10, line 7; column 10, line 49 to column 11, line 12; column 11, lines 25-32; column 12, lines 34-42; column 13, lines 7-13, 18-23 and 26-67; column 14, lines 2-54; and column 17, line 16 to column 18, line 2, Bankes discloses the following:

Re claim 22: A method of measuring stress forces in refiners including a pair of refining discs 310, 312 juxtaposed with each other and forming a refining gap for refining material therebetween, said pair of refining discs including at least one refining surface including a plurality of bars 22 for refining said material within said refining gap, said at least one refining surface including a measuring surface 32 comprising a predetermined portion of said at least one refining surface including at least a portion of at least a pair of said plurality of bars:

> "[T]he sensor head replaces all or a portion of the refiner bar ... [M]easuring force acting on one or more refiner bars ... [P]roviding two or more force sensors on one or more refiner bars ...";

said method comprising resiliently mounting said measuring surface in said at least one refining surface and simultaneously measuring both the magnitude and direction of stress forces "shear forces" in the plane of said measuring surface; wherein said simultaneously measuring comprises measuring said stress forces in a first direction by means of a first force sensor 26 and measuring said stress forces in a second direction by means of a second force sensor 26, said first direction being angularly displaced with respect to said second direction:

> "Use of at least two sensor elements will permit ... shear ... forces to be resolved";

and determining said magnitude and direction of said stress forces by measuring said stress forces in said first and second directions:

> "A force sensor according to the invention comprises a sensor body having a sensor head, and one or more sensor elements **in force transmission contact** with the sensor body. ... [T]he sensor head replaces all or a portion of a refiner bar ... "'**[F]orce transmission contact**' is intended to mean contact between the sensor body and sensor elements that facilitates transmission of **any force** received by the sensor body to the sensor elements. ... Use of at least two sensor elements will permit both **shear** and normal **forces to be resolved**. ... [W]hich can be used to resolve **the forces** produced at a refiner bar ... [W]hen normal and shear forces are applied to the sensor head 32, reaction forces are developed at each of the piezo sensor element locations. An electric charge, proportional to the magnitude of the reaction force, is developed by each piezo sensor element 26. The applied normal and shear forces can be determined by measuring and processing the electric signals from each of the piezo sensor elements 26 using appropriate signal conditioning equipment and data analysis. [emphases added]"

Re claim 24: The method of claim 23 wherein said simultaneously measuring comprises measuring said stress forces in a first direction by means of a first pair of first sensors 26 disposed opposite each other to provide counter-directed readings and measuring said stress forces in said second direction by means of a second pair of

second sensors 26 disposed opposite each other to provide counter-directed readings, said first pair of first sensors and said second pair of second sensors being disposed perpendicularly to each other.

Re claim 25: The method of claim 22 wherein said simultaneous measuring includes compensating for eccentric normal stress forces on said measuring surface:

> "The apparatus can also include temperature gauges that can be used to compensate the measured stresses for thermal expansion of the bar. ... Suitably, the temperature is also measured at each measuring point, in order to enable compensation of the strain measurement for thermal expansion." (Johansson (5747707) column 3, lines 21-23, incorporated by reference).

Re claim 26: The method of claim 22 including measuring stress forces directed perpendicularly to said measuring surface.

Re claim 27: The method of claim 26 wherein said measuring of said stress forces directed perpendicularly to said measuring surface includes combining the force exerted by steam pressure inside said refiner and the force exerted by fiber pressure from said refining material:

> "The temperature gauges can also be used to determine the pressure and velocity of steam supplied, as a function of the radius of the refining disk." (Johansson (5747707) column 3, lines 23-26, incorporated by reference).

Re claim 28: The method of claim 26 wherein said measuring of said stress forces directed perpendicularly to said measuring surface includes measuring the force exerted by fiber pressure from said refining material and compensating for the force exerted by steam pressure inside said refiner:

> "The temperature gauges can also be used to determine the pressure and velocity of steam supplied, as a function of the radius of the refining disk." (Johansson (5747707) column 3, lines 23-26, incorporated by reference).

Re claim 29: The method of claim 23 wherein said simultaneous measuring of both said magnitude and said direction of said stress forces in said plane of said measuring surface comprises calculating both said magnitude and direction from said first and second force sensors, and including controlling said refining process based thereon.

Re claim 30: Apparatus for measuring stress forces in refiners including a pair of refining discs juxtaposed with each other and forming a refining gap for refining material therebetween, said pair of refining discs including at least one refining surface including a plurality of bars for refining said material within said refining gap, said at least one refining surface including a stress measuring member comprising a measuring surface comprising a predetermined portion of said at least one refining surface including at least a portion of at least a pair of said plurality of bars, said stress measuring member being resiliently mounted in said at least one refining surface and comprising at least a first set of force sensors for simultaneously measuring both the magnitude and direction of stress forces in the plane of said stress measuring member; wherein said first set of force sensors comprises a first force sensor for measuring said stress forces in a first direction and a second force sensor for measuring said stress forces in a second direction, said first direction being angularly displaced with respect to said second direction, whereby said magnitude and direction of said stress forces in said plane of said stress measuring member are determined from the readings of each of said first and second force sensors.

Re claim 31: The apparatus of claim 30 including compensating means 26 and "temperature gauges" for compensating for eccentric normal forces in said plane of said stress measuring member that will effect said measuring.

Re claim 32: The apparatus of claim 30 including an additional stress measuring member for measuring stress forces perpendicular to said stress measuring member.

Re claim 34: The apparatus of claim 33 wherein said first set of force sensors includes a pair of said first force sensors for measuring said stress forces in said first direction and a pair of said second force sensors for measuring said stress forces in said second direction.

Re claim 35: The apparatus of claim 30 wherein said stress measuring member comprises a first body connecting said first set of force sensors to said stress measuring member, said first body comprising a first tubular resilient member 28 disposed around the central axis of said stress measuring member, said first set of force sensors being disposed on said first tabular resilient member.

Re claim 36: The apparatus of claim 30 wherein said stress measuring member includes a second set of force sensors 26.

Re claim 37: The apparatus of claim 36 wherein said stress measuring member comprises a second body 28 connecting said second set of force sensors to said stress measuring member, said second body comprising a second tubular resilient member disposed around the central axis of said stress measuring member, said second set of force sensors being disposed on said second tubular resilient member.

Re claim 38: The apparatus of claim 37 wherein said second set of force sensors and said second body comprise compensating means 26 and "temperature gauge" for compensating for eccentric normal forces.

Re claim 39: The apparatus of claim 35 including an additional stress measuring member 26 for measuring stress forces perpendicular to said stress measuring member, said additional stress measuring member comprising at least three force sensors disposed on said first tubular resilient member.

Re claim 40: The apparatus of claim 37 including an additional stress measuring member for measuring stress forces perpendicular to said stress measuring member, said additional stress measuring member comprising at least three force sensors disposed on said second tubular resilient member.

Re claim 41: The apparatus of claim 32 wherein said additional stress measuring member comprises means for measuring the stress force exerted perpendicular to said stress measuring member.

Re claim 42: The apparatus of claim 30 wherein said first set of force sensors comprise "strain gauges" and:

> "As used herein, the term 'sensor element' is intended to mean any transducer that can produce a signal (e.g., an electrical charge or an electrical signal such as voltage or current) in response to loading (e.g., compression). An example of a sensor element is a piezo electric element, such as a piezo-ceramic element. While the invention is described below primarily with respect to piezo electric elements, it is to be understood that the invention is not limited thereto."

The following disclosure of Bankes is further clarified:

Re claim 22: at least a portion of at least a pair of said plurality of bars.

Although, as elucidated supra, Bankes explicitly discloses wherein the portion comprises at least a pair of said bars, the scope of claim 22 is not so limited. Indeed, the scope of claim 22 encompasses wherein the portion comprises only one bar because one bar is at least a portion of at least a pair of said plurality of bars.

Although, as elucidated supra, Bankes explicitly discloses compensating means 26 and "temperature gauges" for compensating for eccentric normal forces in said plane of said stress measuring member that will effect said measuring, the following claim language is also statements of purpose/intended use:

Re claim 31: for compensating for eccentric normal forces in said plane of said stress measuring member that will effect said measuring.

Re claim 38: for compensating for eccentric normal forces.

Similarly, the following claim language is statements of purpose/intended use:

Re claim 22: for refining material; for refining said material within said refining gap therebetween.

Re claim 30: for measuring stress forces in refiners; for refining material therebetween; for refining said material within said refining gap; for simultaneously measuring both the magnitude and direction of stress forces in the plane of said stress measuring member.

Re claim 31: for compensating for eccentric normal forces in said plane of said stress measuring member that will effect said measuring.

Re claim 32: for measuring stress forces perpendicular to said stress measuring member; for measuring said stress forces in a first direction; for measuring said stress forces in a second direction.

Re claim 34: for measuring said stress forces in said first direction; for measuring said stress forces in said second direction.

Re claim 38: for compensating for eccentric normal forces.

Re claim 39: for measuring stress forces perpendicular to said stress measuring member.

Re claim 40: for measuring stress forces perpendicular to said stress measuring member.

Re claim 41: for measuring the stress force exerted perpendicular to said stress measuring member.

Moreover, the statements of purpose/intended use do not appear to result in a manipulative or structural difference between the claimed process/structure and the process/structure of Bankes. Further, because the process/structure of Bankes appears to be the same as the claimed process/structure, they appear to be capable of being used for the purposes and intended uses, and the statements of purpose/intended use do not patentably distinguish the claimed process/structure from the process/structure of Bankes. In re Otto, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963) (Court held that the purpose or intended use of hair curling was of no significance to the process/structure of making). The manner in which a product operates is not germane to the issue of patentability of the product; Ex parte Wikdahl 10

USPQ 2d 1546, 1548 (BPAI 1989); Ex parte McCullough 7 USPQ 2d 1889, 1891 (BPAI 1988); In re Finsterwalder 168 USPQ 530 (CCPA 1971); In re Casey 152 USPQ 235, 238 (CCPA 1967). And, claims directed to product must be distinguished from the prior art in terms of structure rather than function. In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does [or is intended to do]." Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Also, "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim."; Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). And, "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims."; In re Young, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 136 USPQ 458, 459 (CCPA 1963)).

**(10) Response to Argument**

**Arguments A.1.i and A.2.i:**

Appellant argues:

"Bankes Does Not Measure Stress Forces In Two Different Directions In The Plane Of The Measuring Surface. ... Nowhere does Bankes disclose or suggest determining the magnitude and direction of stress forces "in the plane of said measuring surface" by measuring stress forces in two different directions in the plane of the measuring surface (i.e., in a "first direction angularly displaced with respect to [a] second direction"), as recited by independent claim 22."

This argument is respectfully traversed because, as elucidated in the grounds of rejection, Bankes discloses measuring all forces, “any force," including the claimed forces:

> “A force sensor according to the invention comprises a sensor body having a sensor head, and one or more sensor elements **in force transmission contact** with the sensor body. ... [T]he sensor head replaces all or a portion of a refiner bar ... "'**[F]orce transmission contact**' is intended to mean contact between the sensor body and sensor elements that facilitates transmission of **any force** received by the sensor body to the sensor elements. ... Use of at least two sensor elements will permit both **shear** and normal **forces to be resolved**. ... [W]hich can be used to resolve **the forces** produced at a refiner bar ... [W]hen normal and shear forces are applied to the sensor head 32, reaction forces are developed at each of the piezo sensor element locations. An electric charge, proportional to the magnitude of the reaction force, is developed by each piezo sensor element 26. The applied normal and shear forces can be determined by measuring and processing the electric signals from each of the piezo sensor elements 26 using appropriate signal conditioning equipment and data analysis. [emphases added]”

Relatedly, appellant asserts:

> “Bankes does not disclose or suggest, for example, arranging piezo electric sensor elements 26 at different locations in a plane parallel to the refining face 16 in order to measure stress forces in two different directions in the plane of the measuring surface and in order to determine the magnitude and direction of the stress forces in that plane.”

This assertion is respectfully deemed unpersuasive because the scope of the claims is not so limited, and Bankes is not necessarily relied on for this disclosure.

**Arguments A.1.ii and A.2.ii:**

Appellant argues:

> “The Measuring Surface Of Bankes Does Not Include At Least A Portion Of At Least A Pair Of Bars. ... Bankes does not meet the limitation of claim 22 reciting ‘a measuring surface comprising a predetermined portion of said at least one refining surface including at least a portion of at least a pair of said plurality of bars’ (emphasis added). ... A sensor head 32 including a portion of at least a pair of refiner bars is not disclosed or suggested anywhere in Bankes. Instead, as stated above and as clearly described in the above-cited portions of Bankes, the ‘sensor head’ of Bankes only includes a portion of one refiner bar or all of one refiner bar.”

This argument is respectfully traversed because, as elucidated in the grounds of rejection, Bankes discloses that the measuring surface includes at least a portion of a pair of bars:

> "[T]he sensor head replaces all or a portion of the refiner bar ... [M]easuring force acting on one or more refiner bars ... [P]roviding two or more force sensors on one or more refiner bars ...";

In any case, as elucidated in the grounds of rejection, although Bankes explicitly discloses wherein the portion comprises at least a pair of bars, the scope of claim 22 is not so limited. Indeed, the scope of claim 22 encompasses wherein the portion comprises only one bar because one bar is at least a portion of at least a pair of said plurality of bars.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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/David E Graybill/

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